# AUTHOR INDEX

Affandi, R. and Biagianti, S. (Perpignan, France)
A study of the liver of eels kept in captivity: disturbances induced in hepatocytes by artificial diets ..... 226
Anderson, I.G., *see* Nash, G. et al.
Auffret, M. and Poder, M. (Brest, France)
Pathology of the main bivalve mollusc species from oyster rearing areas in Brittany (France) ..... 255
Auffret, M., *see also* Castric, J. et al.; Fisher, W.S. et al.
Avila, E.M., *see* Segner, H. et al.
Azevedo, C. and Corral, L. (Porto, Portugal)
Some cytochemical aspects of two microsporidian parasites ..... 252
Bachere, E., Chagot, D. (La Tremblade, France), Tige, G. (La Trinité sur Mer, France) and Grizel, H. (La Tremblade, France)
Study of a haplosporidian (Ascetospora), parasitizing the Australian flat oyster *Ostrea angasi* ..... 266
Bachere, E., *see also* Chagot, D. et al., p. 262
Balouet, G., *see* Fisher, W.S. et al.
Barja, J.L., *see* Santos, Y. et al.
Baudin Laurencin, F. and Germon, E. (Brest, France)
Experimental infection of rainbow trout, *Salmo gairdneri* R., by dipping in suspensions of *Vibrio anguillarum*: ways of bacteria penetration; influence of temperature and salinity ..... 203
Baudin Laurencin, F., *see also* Castric, J. et al.; Cousin, J.C.B. and Baudin Laurencin, F.; Ricque, D. and Baudin Laurencin, F.
Biagianti, S., *see* Affandi, R. and Biagianti, S.; Faliex, E. and Biagianti, S.
Birkbeck, T.H., McHenery, J.G. and Nottage, A.S. (Glasgow, Great Britain)
Inhibition of filtration in bivalves by marine vibrios ..... 244
Birkbeck, T.H., *see also* Mackie, C. and Birkbeck, T.H.; Nottage, A.S. and Birkbeck, T.H.
Blais, C., *see* Marsot, P. et al.
Bolinches, J., *see* Toranzo, A.E. et al.
Boulo, V., *see* Chagot, D. et al., p. 260; Mialhe, E. et al.
Bower, S.M. (Nanaimo, B.C., Canada)
The life cycle and ultrastructure of a new species of thraustochytrid (Protozoa: Labyrinthomorpha) pathogenic to small abalone ..... 269
Burkhardt, P., *see* Segner, H. et al.
Burrows, A.S. (Plymouth, Great Britain) and Fletcher, T.C. (Aberdeen, Great Britain)
Blood leucocytes of the turbot, *Scophthalmus maximus* (L.) ..... 214
Carvalho-Varela, M. and Cunha-Ferreira, V. (Lisbon, Portugal)
Helminth parasites of the common sole, *Solea solea*, and the Senegalese sole, *Solea senegalensis*, on the Portuguese continental coast ..... 135
Castric, J., Baudin-Laurencin, F., Coustans, M.F. and Auffret, M. (Brest, France)
Isolation of infectious pancreatic necrosis virus, Ab serotype, from an epizootic in farmed turbot, *Scophthalmus maximus* ..... 117
Chagot, D. (La Tremblade, France), Comps, M. (Sète, France), Boulo, V. (La Tremblade, France), Ruano, F. (Lisbon, Portugal) and Grizel, H. (La Tremblade, France)
Histological study of a cellular reaction in *Ruditapes decussatus* infected by a protozoan 260
Chagot, D., Bachere, E. (La Tremblade, France), Ruano, F. (Lisbon, Portugal) Comps, M. (Sète, France) and Grizel, H. (La Tremblade, France)
Ultrastructural study of sporulated instars of a haplosporidian parasitizing the clam *Ruditapes decussatus* ..... 262

Chagot, D., *see also* Bachere, E. et al.; Mialhe, E. et al.
Cheng, K.M., McCallum, I.M., McKay, R.I. and March, B.E. (Vancouver, B.C., Canada)
A comparison of survival and growth of two strains of chinook salmon (*Oncorhynchus tshawytscha*) and their crosses reared in confinement ..... 301
Cheng, K.M., *see also* McCallum, I.M. et al.
Cheng, T.C. (Charleston, SC, U.S.A.)
Some cellular mechanisms governing self and nonself recognition and pathogenicity in vertebrates and invertebrates relative to protistan parasites ..... 1
Colorni, A. (Eilat, Israel)
Biology of *Cryptocaryon irritans* and strategies for its control ..... 236
Comps, M. (Sète, France) Park, M.S. (Busan, Korea) and Desportes, I. (Paris, France)
Fine structure of *Marteilioides chungmuensis* n.g., n.sp., parasite of the oocytes of the oyster *Crassostrea gigas* ..... 264
Comps, M., *see also* Chagot, D. et al., pp. 260, 262; Mialhe, E. et al.
Corral, L., *see* Azevedo, C. and Corral, L.
Cousin, J.C.B. (Rio Grande, RS, Brazil) and Baudin Laurencin, F. (Brest, France)
Histological alterations observed in turbot, *Scophthalmus maximus* L., from days 15 to 40 after hatching ..... 218
Coustans, M.F., *see* Castric, J. et al.
Crespo, S., Sala, R. and Marlasca, M.J. (Barcelona, Spain)
Different cell types in the gill epithelium of juvenile turbot *Scophthalmus maximus* ..... 216
Cruz, C., *see* Eiras, J.C. er al.
Cruz e Silva, M.P., *see* Ventura, M.T. et al.
Cunha-Ferreira, V., *see* Carvalho-Varela, M. and Cunha-Ferreira, V.
Dalsgaard, I., *see* Mellergaard, S. and Dalsgaard, I.
Desportes, I., *see* Comps, M. et al.
Diamant, A. and McVicar, A.H. (Aberdeen, Great Britain)
The effect of internal and external X-cell lesions on common dab, *Limanda limanda* L. .. 127
Doggett, T.A., *see* Hart, S. et al.
Dopazo, C.P., *see* Santos, Y. et al.
Egidius, E. (Bergen, Norway)
Vibriosis: pathogenicity and pathology. A review ..... 15
Eiras, J.C., Saraiva, A. and Cruz, C. (Porto, Portugal)
A note on the Portuguese situation concerning some notifiable fish diseases ..... 279
Evelyn, T.P.T. (Nanaimo, B.C., Canada)
Book review of *Diseases and Parasites of Marine Fishes*, by H. Möller and K. Anders ..... 385
Faliex, E. and Biagianti, S. (Perpignan, France)
Metacercarial infection of marine fish by *Labratrema minimus* (Digenea, Bucephalidae): histo-cytological analysis of host–parasite relationship ..... 229
Faris, A., *see* Krovacek, K. et al.
Felix, S., *see* Natarajan, P. and Felix, S.
Fisher, W.S. (Cambridge, MD, U.S.A.), Auffret, M. and Balouet, G. (Brest, France)
Response of European flat oysters (*Ostrea edulis*) hemocytes to acute salinity and temperature changes ..... 179
Fletcher, T.C., *see* Burrows, A.S. and Fletcher, T.C.
Fukuda, H., *see* Sano, T. and Fukuda, H.
Gacutan, R.Q., *see* Llobrera, A.T. and Gacutan, R.Q.
Germon, E., *see* Baudin Laurencin, F. and Germon, E.
Grazina-Freitas, M.S., *see* Ventura, M.T. et al.
Grizel, H., *see* Bachere, E. et al.; Chagot, D. et al., pp. 260, 262; Mialhe, E. et al.
Groman, D.B. and Miller, K. (Aberdeen, Great Britain)
Haemolytic anaemia of wild Atlantic salmon: haematology and chemical pathology ..... 210

Harris, J.E., *see* Hart, S. et al.
Hart, S., Wrathmell, A.B., Doggett, T.A. and Harris, J.E. (Plymouth, Great Britain)
An investigation of the biliary and intestinal immunoglobulin and the plasma cell distribution in the gall bladder and liver of the common dogfish, *Scyliorhinus canicula* L. ..... 147
Houle, L., *see* Marsot, P. et al.
Jansson, E., Sundqvist, B., Rivera, E., Thuvander, A. and Ljungberg, O. (Uppsala, Sweden)
A solid phase immunoassay for the rapid detection of *Vibrio anguillarum* in infected rainbow trout ..... 206
Juario, J.V., *see* Segner, H. et al.
Ketterer, P.J. *see* Lester, R.J.G. et al.
Krovacek, K., Faris, A. and Månsson, I. (Uppsala, Sweden)
Cytotoxic and skin permeability factors produced by *Vibrio anguillarum* ..... 87
Ledo, A., *see* Toranzo, A.E. et al.
Legendre, M. (Abidjan, Ivory Coast), Pagano, M. (Marseille, France) and Saint-Jean, L. (Montpellier, France)
Peuplements et biomasse zooplanctonique dans des ètangs de pisciculture lagunaire (Layo, Côte d'Ivoire). Etude de la recolonisation après la mise en eau (Zooplankton populations and biomass in brackish aquaculture ponds (Layo, Ivory Coast). Recolonisation after liming and filling) ..... 321
Lemos, M.L., *see* Toranzo, A.E. et al.
Lester, R.J.G. (Brisbane, Qld., Australia), Ketterer, P.J. (Yeerongpilly, Qld., Australia) and Paynter, J.L. (Brisbane, Qld., Australia)
Intranuclear inclusion bodies in the hepatopancreas of the brown tiger prawn *Penaeus esculentus* ..... 238
Lisac, D., *see* Šarušić, G. and Lisac, D.
Ljungberg, O., *see* Jansson, E. et al.
Llobrera, A.T. and Gacutan, R.Q. (Iloilo, The Philippines)
*Aeromonas hydrophila* associated with ulcerative disease epizootic in Laguna de Bay, Philippines ..... 273
Mackie, C. and Birkbeck, T.H. (Glasgow, Great Britain)
Antigenic components in the cell envelope in *Vibrio anguillarum* ..... 249
Månsson, I., *see* Krovacek, K. et al.
March, B.E., *see* Cheng, K.M. et al.; McCallum, I.M. et al.
Marinsca, M.J., *see* Crespo, S. et al.
Marsot, P., Houle, L. and Blais, C. (Rimouski, Que., Canada)
Rendements et caractéristiques biologiques de cultures à dialyse continues de *Phaeodactylum tricornutum* opérant à divers taux de dilution (Yield and biological characteristics of continuous *Phaeodactylum tricornutum* production as influenced by the dilution rate applied to dialysis cultures) ..... 353
Matthews, R.A., *see* Wood, B.P. and Matthews, R.A.
McCallum, I.M., Cheng, K.M. and March, B.E. (Vancouver, B.C., Canada)
Carotenoid pigmentation in two strains of chinook salmon (*Oncorhynchus tshawytscha*) and their crosses ..... 291
McCallum, I.M., *see also* Cheng, K.M. et al.
McHenery, J.G., *see* Birkbeck, T.H. et al.
McKay, R.I., *see* Cheng, K.M. et al.
McVicar, A.H. (Aberdeen, Great Britain)
Pancreas disease of farmed Atlantic salmon, *Salmo salar*, in Scotland: epidemiology and early pathology ..... 71

McVicar, A.H., *see also* Diamant, A. and McVicar, A.H.
Melendez, M.I., *see* Montes, J. and Melendez, M.I.
Mellergaard, S. and Dalsgaard, I. (Frederiksberg, Denmark)
Disease problems in Danish eel farms ..... 139
Menezes, J., Ramos, M.A. and Pereira, T.G. (Lisbon, Portugal)
Lymphocystis disease: an outbreak in *Sparus aurata* from Ria Formosa, south coast of Portugal ..... 222
Mialhe, E., Chagot, D., Boulo, V. (La Tremblade, France), Comps, M. (Sète, France), Ruano, F. (Lisbon, Portugal) and Grizel, H. (La Tremblade, France)
An infection of *Ruditapes decussatus* (Bivalvia) by *Rickettsia* ..... 258
Miller, K., *see* Groman, D.B. and Miller, K.
Montes, J. and Melendez, M.I. (Pontevedra, Spain)
Données sur la parasitose de *Bonamia ostreae* chez l'huître plate de Galice, côte nord-ouest de l'Espagne (Data on the parasitism of *Bonamia ostreae* in the flat oyster of Galicia, north-west coast of Spain) ..... 195
Mori, K., *see* Okoshi, K. et al.
Mosconi-Bac, N. (Perpignan, France)
Hepatic disturbances induced by an artificial feed in the sea bass (*Dicentrarchus labrax*) during the first year of life ..... 93
Nakari, T., Soivio, A. and Pesonen, S. (Helsinki, Finland)
Effects of an advanced photoperiod cycle on the gonadal development and spawning time of 2-year-old *Salmo gairdneri* R. reared in earth ponds under extreme annual water temperatures ..... 369
Nash, G. (Stirling, Great Britain), Anderson, I.G., Shariff, M. and Shamsudin, M.N. (Serdang, Malaysia)
Bacteriosis associated with epizootic in the giant sea perch, *Lates calcarifer*, and the estuarine grouper, *Epinephelus tauvina*, cage cultured in Malaysia ..... 105
Natarajan, P. and Felix, S. (Tuticorin, India)
Studies on infestation and effects of certain parasites of *Mystus gulio* along the south-east coast of India ..... 233
Nieto, T.P., *see* Santos, Y. et al.
Nilsen, B., *see* Ringø, E. and Nilsen, B.
Nomura, T., *see* Okoshi, K. et al.
Nottage, A.S. and Birkbeck, T.H. (Glasgow, Great Britain)
The role of toxins in *Vibrio* infections of bivalve molluscs ..... 244
Nottage, A.S., *see also* Birkbeck, T.H. et al.
Okoshi, K., Mori, K. and Nomura, T. (Sendai, Japan)
Characteristics of shell chamber formation between the two local races in the Japanese oyster, *Crassostrea gigas* ..... 313
Pagano, M., *see* Legendre, M. et al.
Palva, E.T., *see* Palva, T.K. and Palva, E.T.
Palva, T.K. (Kuopio, Finland) and Palva, E.T. (Helsinki, Finland)
Restriction site polymorphism in mitochondrial DNA of rainbow trout, *Salmo gairdneri* Richardson, stocks in Finland ..... 283
Papayanni, P. and Vivares, C.P. (Montpellier, France)
Etude cytologique de *Hexamita nelsoni* Schlicht et Mackin 1968 (Flagellata, Diplomonadida) parasite des huîtres Méditerranéennes (Cytological study of *Hexamita nelsoni* Schlicht et Mackin 1968 (Flagellata, Diplomonadida), a parasite of Mediterranean oysters) ..... 171
Papayanni, P., *see also* Vivares, C.P. et al.
Paperna, I. (Rehovot, Israel)
Systemic granuloma of spariid fish in culture ..... 53

Park, M.S., *see* Comps, M. et al.
Paynter, J.L., *see* Lester, R.J.G. et al.
Pereira, T.G., *see* Menezes, J. et al.
Perkins, F.O. (Gloucester Point, VA, U.S.A.)
Protistan parasites of commercially significant marine bivalve molluscs – life cycles, ultrastructure, and phylogeny ..... 240
Pesonen, S., *see* Nakari, T. et al.
Poder, M., *see*, Auffret, M. and Poder, M.
Quiot, J.-M., *see* Vivares, C.P. et al.
Ramos, M.A., *see* Menezes, J. et al.
Ricque, D. and Baudin-Laurencin, F. (Brest, France)
Enzyme-linked immunosorbent assay (ELISA) or agglutination test for monitoring potency of trout vibriosis vaccines ..... 207
Ringø, E. and Nilsen, B. (Tromsø, Norway)
Hatchery-reared landlocked Arctic charr, *Salvelinus alpinus* (L.), from Lake Takvatn, reared in fresh and sea water. I. Biochemical composition of food, and lipid composition of fish reared in fresh water ..... 343
Rivera, E., *see* Jansson, E. et al.
Ruano, F., *see* Chagot, D. et al., pp. 260, 262; Mialhe, E. et al.
Saint-Jean, L., *see* Legendre, M. et al.
Sala, R., *see* Crespo, S. et al.
Sano, T. and Fukuda, H. (Tokyo, Japan)
Principal microbial diseases of mariculture in Japan ..... 59
Santos, Y., Toranzo, A.E., Dopazo, C.P., Nieto, T.P. and Barja, J.L. (Santiago de Compostela, Spain)
Relationships among virulence for fish, enterotoxigenicity, and phenotypic characteristics of motile *Aeromonas* ..... 29
Santos, Y., *see also* Toranzo, A.E. et al.
Saraiva, A., *see* Eiras, J.C. et al.
Šarušić, G. and Lisac, D. (Zadar, Yugoslavia)
The "broken neck syndrome" in sea bass (*Dicentrarchus labrax* L.) ..... 101
Segner, H., Burkhardt, P. (Heidelberg, Federal Republic of Germany), Avila, E.M. (Heidelberg, Federal Republic of Germany and Iloilo, The Philippines), Storch, V. Heidelberg, Federal Republic of Germany) and Juario, J.V. (Iloilo, The Philippines)
Effects of *Chlorella*-feeding on larval milkfish, *Chanos chanos*, as evidenced by histological monitoring ..... 113
Shamsudin, M.N., *see* Nash, G. et al.
Shariff, M., *see* Nash, G. et al.
Soivio, A., *see* Nakari, T. et al.
Storch, V., *see* Segner, H. et al.
Sundqvist, B., *see* Jansson, E. et al.
Thorburn, M.A. (Uppsala, Sweden)
Factors influencing seasonal vibriosis mortality rates in Swedish pen-reared rainbow trout ..... 79
Thuvander, A., *see* Jansson, E. et al.
Tige, G., *see* Bachere, E. et al.
Toranzo, A.E., Santos, Y., Lemos, M.L., Ledo, A. and Bolinches, J. (Santiago de Compostela, Spain)
Homology of *Vibrio anguillarum* strains causing epizootics in turbot, salmon and trout reared on the Atlantic coast of Spain ..... 41

Toranzo, A.E., *see also* Santos, Y. et al.
Turton, G.C. and Wardlaw, A.C. (Glasgow, Great Britain)
Pathogenicity of the marine yeasts *Metschnikowia zobelli* and *Rhodotorula rubra* for the sea urchin *Echinus esculentus* ..... 199
Van Banning, P. (IJmuiden, The Netherlands)
Preface and acknowledgements ..... x
Further results of the *Bonamia ostreae* challenge tests in Dutch oyster culture ..... 191
Ventura, M.T., Grazina-Freitas, M.S. and Cruz e Silva, M.P. (Lisbon, Portugal)
Lipoid liver degeneration in trout — a diet-related condition ..... 213
Vivares, C.P., Papayanni, P. (Montpellier, France) and Quiot, J.-M. (Saint Christol les Ales, France)
Etude in vivo et in vitro de la pathogénicité de *Hexamita nelsoni* Schlicht et Mackin 1968, vis à vis des huîtres (In vivo and in vitro study of the pathogenic effect of *Hexamita nelsoni* Schlicht et Mackin 1968, on oysters) ..... 165
Vivares, C.P., *see also* Papayanni, P. and Vivares, C.P.
Vogt, G. (Heidelberg, Federal Republic of Germany)
Monitoring of environmental pollutants such as pesticides in prawn aquaculture by histological diagnosis ..... 157
Wardlaw, A.C., *see* Turton, G.C. and Wardlaw, A.C.
Wood, B.P. and Matthews, R.A. (Plymouth, Great Britain)
In vivo study of the effect of temperature and light on the melanisation of cysts of *Cryptocotyle lingua* (Creplin, 1825) in the mullet, *Chelon labrosus* (Risso, 1826) ..... 221
Wrathmell, A.B., *see* Hart, S. et al.

# CONTENTS OF *AQUACULTURE*, VOLUME 67

## VOL. 67 NOS. 1/2 1 DECEMBER 1987

Special Issue: for contents see pp. vi-ix

## VOL. 67 NOS. 3/4 15 DECEMBER 1987

**Diseases, Parasites and Predators**

*Aeromonas hydrophila* associated with ulcerative disease epizootic in Laguna de Bay, Philippines
A.T. Llobrera and R.Q. Gacutan (Iloilo, The Philippines) ..... 273

A note on the Portuguese situation concerning some notifiable fish diseases
J.C. Eiras, A. Saraiva and C. Cruz (Porto, Portugal) ..... 279

**Genetics and Breeding**

Restriction site polymorphism in mitochondrial DNA of rainbow trout, *Salmo gairdneri* Richardson, stocks in Finland
T.K. Palva (Kuopio, Finland) and E.T. Palva (Helsinki, Finland) ..... 283

Carotenoid pigmentation in two strains of chinook salmon *(Oncorhynchus tshawytscha)* and their crosses
I.M. McCallum, K.M. Cheng and B.E. March (Vancouver, B.C., Canada) ..... 291

A comparison of survival and growth of two strains of chinook salmon *(Oncorhynchus tshawytscha)* and their crosses reared in confinement
K.M. Cheng, I.M. McCallum, R.I. McKay and B.E. March (Vancouver, B.C., Canada) ..... 301

Characteristics of shell chamber formation between the two local races in the Japanese oyster, *Crassostrea gigas*
K. Okoshi, K. Mori and T. Nomura (Sendai, Japan) ..... 313

**Husbandry and Management**

Peuplements et biomasse zooplanctonique dans des étangs de pisciculture lagunaire (Layo, Côte d'Ivoire). Etude de la recolonisation après la mise en eau (Zooplankton populations and biomass in brackish aquaculture ponds (Layo, Ivory Coast). Recolonisation after liming and filling)
M. Legendre (Abidjan, Ivory Coast), M. Pagano (Marseille, France) and L. Saint-Jean (Montpellier, France) ..... 321

**Nutrition**

Hatchery-reared landlocked Arctic charr, *Salvelinus alpinus* (L.), from Lake Takvatn, reared in fresh and sea water. I. Biochemical composition of food, and lipid composition of fish reared in fresh water
E. Ringø and B. Nilsen (Tromsø, Norway) ..... 343

Rendements et caractéristiques biologiques de cultures à dialyse continues de *Phaeodactylum tricornutum* opérant à divers taux de dilution (Yield and biological characteristics of continuous *Phaeodactylum tricornutum* production as influenced by the dilution rate applied to dialysis cultures)
P. Marsot, L. Houle and C. Blais (Rimouski, Que., Canada) ..... 353

**Physiology and Endocrinology**

Effects of an advanced photoperiod cycle on the gonadal development and spawning time of 2-year-old *Salmo gairdneri* R. reared in earth ponds under extreme annual water temperatures
T. Nakari, A. Soivio and S. Pesonen (Helsinki, Finland) ..... 369

**Book Review**

Diseases and parasites of marine fishes ..... 385

**Announcement** ..... 386

**Author Index** ..... 387

**Contents of *Aquaculture*, volume 67** ..... 393